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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,569	12/30/2003	Leonard Ciprian Mosescu	MSFT-2832/304070.01	8073

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EXAMINER	
ROSE, HELENE ROBERTA	

ART UNIT	PAPER NUMBER
2163	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,569	MOSESCU, LEONARD CIPRIAN	
	Examiner	Art Unit	
	Helene Rose	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. This office action is in response to an AMENDMENT entered on 9/14/2006 for patent application 10/748,569 filed on 12/30/2003

2. In response to communications entered on 9/14/2006, Claims 1-23 are pending. No claims were amended, added, nor cancelled.

3. Applicant's arguments filed in response to claims 1-23 have been fully considered but they are not persuasive.

Claim Rejections – 35 U.S.C – 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ambroziak (US Patent No. 6,055,526, Date of Patent: April 25, 2000).

Claims 1 and 9:

Regarding claims 1 and 9, Ambroziak teaches a system for compression comprising:

a memory device that stores a plurality of compressed and uncompressed normalized index keys in sorted order (column 16, lines 37-39, wherein sorting is performed on the C/P groups arrange the concepts in order of there concept identifiers, Ambroziak), with no gaps between the stored normalized keys (column 9, lines 49-50, wherein most files related to the invention are stored in compressed form, Ambroziak), and stores a plurality of slots with no gaps between the stored

slots (column 1, lines 52-58, wherein compressing an index to obtain a compressed index that is easily stored and transmitted, also providing for decompression of such a compressed index, wherein it further provides maintenance and use of a plurality of files that contain indexing information Ambroziak); and

a processor that compresses the stored normalized keys (Figure 2, diagram 210, wherein processor hardware is illustrated, Ambroziak).

Claims 2 and 10:

Regarding claims 2 and 10, Ambroziak teaches wherein the memory device stores the plurality of compressed and uncompressed normalized index keys starting after a header and the plurality of normalized index keys grows towards the end of the memory device as additional index keys are added (Figure 4, wherein block 3 is illustrated as the header and column 14, lines 45-55, wherein format of document file data structure, wherein the data structure begins with a byte of information used to store compression factor or key for compression, wherein they byte information is followed by a plurality of bytes information, i.e. n bytes, wherein the compressed indexes are decompressed using the compression factor or key that precedes then in the document file, and the number of bytes used to store the compressed indexes, i.e. n bytes may vary depending on the compression factor or key used.; column 6, lines 1-5, wherein each subclass in the hierarchy may add to or modify the behavior specified in the parent class, Ambroziak)

Claims 3 and 11:

Regarding claim 3 and 11, Ambroziak teaches wherein the memory device stores the plurality of slots starting immediately at the end of the memory device (column 11, lines 54-56, wherein the block numbers are integers stored in reverse order from the end of the entry/pointer region towards the middle, Ambroziak) and the plurality of slots grow towards the beginning of the

memory device as additional slots are added (column 18, lines 22-26, wherein increasing the efficiency of incremental indexing, Ambroziak).

Claims 4 and 12:

Regarding claims 4 and 12, Ambroziak teaches wherein each slot corresponds to a normalized index key in the memory page and comprises a memory offset of the corresponding key and an indicator indicating if the corresponding normalized index key is compressed (Figure 8, all features, further defined in column 13, lines 18-34, wherein normalization is interpreted to be a geometric object is to transform it so that some function of its coordinates or other parameters has a pre-specified value and wherein a compression factor is defined, Ambroziak).

Claims 5, 13 and 17:

Regarding claims 5, 13 and 17, Ambroziak teaches wherein the processor compresses the stored normalized keys on the memory page by:

(a) determining if a first normalized index key in a memory device should be compressed (Figure 14B, all features and Figure 15, all features, Ambroziak);

(b) comparing the first normalized index key with a second normalized index key preceding the first normalized index key in the memory device (column 17, lines 22-31, wherein the relevant concepts identifiers of the query are compared against the table to determine the C/P groups are relevant and lines 42-45, wherein the concept identifiers for the relevant concepts f the query are compared to the MaxTable entries, and column 14, lines 1-8, wherein the two first and second index is defined, Ambroziak);

(c) generating a common byte length between the first normalized index key and the second normalized index key consisting of the number of bytes in the common prefix between the first normalized index key and the second normalized index key (column 11, lines 26-38, wherein

concept entry has a structure that begins with a byte representative of the length of the concept or key, wherein the byte is followed by a byte denoting the length of the shared prefix and the shared prefix is a component of an entry that is common to another entry, for example, the preceding entry, wherein the byte denoting the length of the shared prefix is followed by an integer value indicating the concept identifier that is unique to the concept and following the integer value is a plurality of bytes of information, i.e. n bytes, used for storing the concept name or concept suffix, where n is the concept length., wherein the concept name is a portion of the concept that is unique among concepts having the same shared prefix, Ambroziak);

(d) replacing the first index key in the memory page with the generated common byte length followed by the bytes from the first normalized index key that were not in the common prefix between the first normalized index key and the second normalized index key (Figure 12, diagram 1205, wherein the existing microindex for the document is replaced with the new micorindex, wherein its further defined in column 19, lines 15-24, Ambroziak);

(e) shifting the normalized index keys following the first normalized index key to fill any empty memory space resulting from compressing the first normalized index key and updating the memory offsets contained in the slots corresponding to the shifted normalized index keys (column 9, lines 30-35, wherein jumping is equivalent to shifting, Ambroziak); and

(f) updating the indicator in the slot corresponding to the first normalized index key to reflect that the key is now compressed (column 9, lines 50-60, Ambroziak).

Claims 6, 14 and 18:

Regarding claims 6, 14 and 18, Ambroziak teaches wherein the processor repeating steps (a)-(f) for each normalized index key in the memory device (column 9, lines 15-18, Ambroziak).

Claims 7, 15 and 19:

Regarding claims 7, 15 and 19, Ambroziak teaches wherein the processor determining if a first normalized index key should be compressed comprises:

examining an indicator in the slot corresponding to the first normalized index key to determine if the first normalized key is already compressed and not compressing a key that has already been compressed (Figure 16A, all features wherein diagram 1603, identifying is equivalent to examining, Ambroziak); and

determining if the first normalized index key has a preceding index key on the memory device and not compressing a key that does not have a preceding index key on a memory device (column 11, lines 16-25, wherein a leaf block stores a header followed by a series of lexicographically ordered entries, and an entry shares a prefix with a preceding entry, only the remaining suffix of the entry need be stored, wherein an entry describes a concept and a concept is an element of information for which indexing is sought, Ambroziak).

Claims 8 and 16:

Regarding claims 8 and 16, Ambroziak teaches wherein the processor compresses the stored normalized index keys before a memory page split (Figure 16A, all features, wherein its further defined in column 20, lines 30-41, wherein in Figure 15, diagram 1505, entries in the file are compressed, Ambroziak).

Claim 20:

Regarding claim 20, Ambroziak teaches a computer-readable medium having stored thereon a data structure, comprising:

(a) a first data field containing data representing a header (Figure 8, all features, wherein multiple group index contains a header and compression factor, further defined in column 13, lines 18-34, Ambroziak);

(b) a second data field containing data representing a plurality of normalized index keys (column 13, lines 15-17, wherein dividing into groups and column 20, lines 42-43, wherein all concepts and positions are divided into C/P groups wherein normalization is interpreted to be to divide a quantity by a more fundamental quantity of the same dimensions, Ambroziak); and

(c) a third data field containing a plurality of slots, each slot corresponding to a normalized index key in the second data field (column 14, lines 30-38, Ambroziak).

Claim 21:

Regarding claim 21, Ambroziak teaches wherein the first data field is stored in a fixed region of memory addresses at the beginning of the medium (column 3, lines 41-42, wherein fixed is defined, Ambroziak).

Claim 22:

Regarding claim 22, Ambroziak teaches wherein the second data filed is stored in a region of the memory addresses immediately following the first data field and grows towards the third data field (Figure 7, diagram 704, is interpreted to be the second data filed and further defined in column 12, lines 48-50, and the C/P is interpreted to be the third data field, Ambroziak).

Claim 23:

Regarding claim 23, Ambroziak teaches wherein the third data field is stored in a region of the memory address starting at the end of the medium and grows toward the second data field (Figure 7, diagram 705, wherein it grows towards the diagram 701 and column12, lines 1-10, wherein the C/P is the third table, Ambroziak).

Response to Arguments

Applicant argues, "Ambroziak fails to teach a memory device that stores a plurality of compressed and uncompressed normalized index keys in sorted order."

Examiner is not persuaded. Referring to Figure 1, all features, wherein illustrates a computer which includes a main memory and mass storage; column 1, lines 56-58, the use of plurality of files that contain indexing information; column 4, lines 32-41, wherein a computer can send messages and receive data and so forth, which is equivalent to an memory device, wherein a memory device is interpreted to be a device that preserves information for retrieval; see abstract, wherein a method for compressing an index to obtain a compressed index that is easily stored and transmitted, and wherein the invention also provides for the decompression of such a compressed index, wherein uncompressed is defined to be restoring its uncompressed form, which is interpreted to be the decompression, and compress is defined to be reducing in size such as a file or a communication message so that is can be stored in less space; Figure 7, diagrams 701 and 702, all features, wherein the C/P contains two compressed lists, the first being 16 concepts in ascending order, and the second compression factor, or key of k2, a list of pairs of positions and 4 bit indexes into the first list, and wherein the positions are stored in ascending numerical order and the decompressed C/p group comprises positions in ascending order, wherein p1 and so forth, see column 12, lines 47-61, and wherein this is equivalent to "a memory device that stores a plurality of compressed and uncompressed normalized index keys in sorted order"

Applicant argues, "Ambroziak fails to teach "storing the normalized keys with no gaps between them."

Examiner is not persuaded. Referring to column 10, lines 46-47, wherein the blocks of the tree structure are stored sequentially in a terminology map file, wherein sequentially is interpreted to be one after the other, like 1 2 3 4 5, wherein this is equivalent to "no gaps between them".

Applicant argues, "Ambroziak fails to teach "storing a plurality of slots with no gaps between the stored slots."

Examiner is not persuaded. Referring to column 12, lines 14-26, wherein position file is a collection of micro-indexes, and wherein the micro-indexes are independent of one another and are stored one after another, wherein the micro-indexes are interpreted to be the slots and wherein "stored one after another" this is interpreted to be no gaps between them.

Applicant argues, "Ambroziak fails to teach "comparing the first normalized index key with a second normalized key preceding the first normalized index key in the memory page."

Examiner is not persuaded. Referring to column 19, lines 52-67, wherein a decision is made whether or not the index is a single group index, and if the index is a single group index, the process continues, wherein K1 is obtained, and a list of concept identifiers is decompressed using key K1 and wherein K2 is obtained, in which a C/P group is decompressed using K2, wherein positions corresponding to desired concept identifiers are obtained, wherein decompressed is interpreted to be restoring a group of compressed files to original size and wherein the index is determined not to be

a single group index, the process continues and the key KK is obtained, and a KTable is decompressed using key KK, in which key K.sub.maxtable is obtained and a MaxTable is decompressed using key K.sub.maxtable and wherein the desired concept identifier is compared to the MaxTable entries and the appropriate C/P group is determined on the basis of the comparison between the desired concept identifier and the MaxTable entries.

Applicant argues, "Ambroziak fails to teach "a third data containing a plurality of slots, each slot corresponding to a normalized index key in the second data field."

Examiner is not persuaded. Referring to Figure 8, diagrams 802,803, 804, and 810 all features, wherein a plurality of positions is shown in diagram 826, wherein P1, P2....PN; column 14, lines 15-29, wherein these 29 bits are a plurality of bytes (n bytes) used to store three compressed lists and the three compressed lists are a compressed list of C/P group lengths, referred to as a "LenTable," a compressed list of maximal concept identifiers for the C/P groups, referred to as a "MaxTable," and a compressed list of compression factors, or keys, for decompressing the LenTable, MaxTable, and C/P groups, referred to as a "KTable.", and these three compressed lists are followed by a plurality of bytes (n bytes) used to store a plurality of C/P groups and the numbers of bytes represented by the variable n may vary in each instance the variable is used and may depend upon the compression factors, or keys, used.

Prior Art of Record

(The prior art made of record and not relied upon is considered pertinent to applicant's disclosure)

1. Ambroziak	US Patent No. 6,055,526
2. Bumbulis	US PG Publication No. 2003/0204513

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helene Rose
Technology Center 2100
December 1, 2006

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